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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/655,893	09/06/2000	Delin Li	198-0191/198-0696	8907

29074 7590 11/10/2005  
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CHICAGO, IL 60610

EXAMINER
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TRINH, MINH N

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 11/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.



## **DETAILED ACTION**

### ***Election/Restrictions***

1. The reply filed on 9/01/05 has been acknowledged and made of record. Claim 8 has been cancelled. Pending claims 9-14 as amended read on elected Group II group II invention. An Office action on the merits of claims 9-21 as follows:

### ***The title***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: "Method for Forming Multilayer Circuit Board assembly" or the like.

### ***Specification***

3. The specification is objected to because it does not clearly describe the feature such as "a first pre circuit assembly" as recited in claim 14, lines 3-4. Correction is required. See MPEP § 608.01(b). Noted that at best the specification discloses a pre-circuit assembly but fail to describe exactly what is referred as "a first pre circuit assembly".

### ***Drawings***

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "a first pre circuit assembly" (see claim 14, lines 3-4) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 9-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The following are examples:

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It is not known what applicants are referring as "a first pre-circuit assembly" (see claim 14, lines 3-4) since the specification and/or the drawing is silent of what is being referred as a first pre-circuit assembly. Also, the limitation recites: "inserting conductive material into said aperture effective to connect said first portion of said second conductive layer to said first conductive layer" (claim 14, lines 17-19) appears to be incomplete because the specification is silent about the first pre-circuit assembly and the drawings do not clearly show the above including the connection between "the first portion of said second conductive layer to said first conductive layer".

Also, the phrase: "a second pre-circuit assembly including a second conductive layer" (see claim 8, lines 3-4) is not clear as to whether "a second pre-circuit assembly" is actually having an associated "a second conductive layer" connected therefrom.

### ***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 14 as best understood is rejected under 35 U.S.C. 102(b) as being anticipated by Akiyama et al (3,801,338).

Akiyama et al disclose a method for connection within a multilayer circuit board including a first pre-circuit assembly 34 having a first conductive layer 32, and a second pre-circuit assembly 36 having a second conductive layer 33 the method comprising:

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forming an aperture 44 within said first pre-circuit assembly (see related Fig. 7E); aligning the second pre-circuit assembly 36 with said first pre-circuit assembly 34 such that a first portion of said second conductive layer resides above said aperture (see Fig. 7E); attaching said first pre-circuit assembly 34 to said second pre-circuit assembly 36; and inserting conductive material 44 into said aperture effective to connect said first portion of the second conductive layer to said first conductive layer (see Fig. 7F). Note that references 34 and 36 of Akiyama et al represented the broadly claimed pre-circuit assembly as claimed by the present application claims.

9. Claim 14 as best understood is rejected under 35 U.S.C. 102(b) as being anticipated by Livshits et al (4,404,059).

Livshits et al also disclose a method for connection within a multilayer circuit board including a first pre-circuit assembly 1 having a first conductive layer, and a second pre-circuit assembly 7 having a second conductive layer the method comprising: forming an aperture within said first pre-circuit assembly (see related Fig. 5); aligning the second pre-circuit assembly 7 with said first pre-circuit assembly 1 such that a first portion of said second conductive layer resides above said aperture (see Fig. 5); attaching said first pre-circuit assembly 1 to said second pre-circuit assembly 7; and inserting conductive material 21 into said aperture effective to connect said first portion of the second conductive layer to said first conductive layer (see Fig. 5). It is noted that layer 21 of Livshits et al represented the claimed conductive material of the present application invention claims.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama et al (3,801,338) or Livshits et al (4,404,059).

Regarding the limitations of these claims. It would have been an obvious matter of design choice to choose any desired materials associated with the process including the configuration requirements as set forth in claims 15 and 21 since applicant has not disclosed that these features are critical, patentably distinguishing features and it appears that the invention would perform equally well with the materials and the configuration requirements as taught by the Akiyama et al or Livshits et al prior art references. Noting the applied reference does teach the etching the core member (i.e., see Figs. 1c-d of Akiyama; and the conductive material is to be solderable material 23 of Akiyama, etc.

Limitations of claims 16-21 (see the above discussion).

***Allowable Subject Matter***

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12. Claims 9-13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

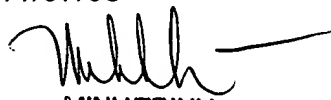
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Trinh whose telephone number is (703) 305-2887. The examiner can normally be reached on Monday -Thursday 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on (703) 308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mt

11/07/05

  
**MINH TRINH**  
**PRIMARY EXAMINER**